

Attorney Docket No.: RU-0175
Inventors: Eric Lam
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

The claims have been amended as follows:

25. (amended) A method for inserting a heterologous DNA molecule into a pre-determined location on a plant genome, which comprises;

a) transforming a sample of plant cells containing the genome with the DNA construct of Claim 24, to produce a substrate-transformed cell line;

b) transforming an equivalent sample of plant cells with a gene encoding a transposase that specifically acts on the DNA substrates in the DNA construct of claim 24, to produce a transposase-transformed cell line;

~~c+d~~ regenerating fertile organisms from each of the transformed cell lines;

~~c+d~~ crossing the substrate-transformed line with the transposase-transformed line to produce F1 progeny;

~~d+e~~ self-pollinating the F1 progeny to produce F2 progeny; and

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et al growing the F2 progeny in the presence of the positive selection agent and the negative selection agent, progeny plants comprising the heterologous DNA inserted into the pre-determined location on the plant's genome being capable of surviving in the presence of both the positive selection agent and the negative selection agent.

26. (amended) The method of Claim 26 25, which further comprises selecting a substrate-transformed cell line comprising one copy of the DNA construct per cell.

28. (amended) The kit of claim 27, which further comprises a DNA construct having a gene encoding a transposase that specifically acts on the DNA substrates in the DNA construct. of claim 27.

29. (amended) A method for activation tagging of a plant genome to create variants displaying a desired phenotype, which comprises:

a) transforming a sample of plant cells containing the genome with the DNA construct of claim 1 or claim 24, to produce a substrate-transformed cell line;

b) transforming an equivalent sample of plant cells with a gene encoding a transposase that specifically acts on the

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DNA substrates in the DNA construct of claim 1, to produce a transposase-transformed cell line;

b) c) regenerating fertile organisms from each of the transformed cell lines;

c) d) crossing the substrate-transformed line with the transposase-transformed line to produce F1 progeny;

d) e) self-pollinating the F1 progeny to produce F2 progeny; and

e) f) growing the F2 progeny under conditions predetermined to select for the desired phenotype in the plant.

32. The kit of claim 32 31, which further comprises a DNA construct having a gene encoding a transposase that specifically acts on the DNA substrates in the DNA construct. ~~of claim 31.~~